

and had comparatively little effect on the stages. A very moderate freshet occurred in the James River on the 24th to 26th. The rivers of North Carolina remained low during the month, but the Roanoke at Weldon rose rapidly from 11.2 feet on the 24th to 26.8 feet on the 26th, for which an advisory warning was sent. Moderaterises occurred in the Lynch and Pedee Rivers, in South Carolina, toward the close of the month, and the Santee was slightly above flood stages at Ferguson and Rimini on the 30th without any damage. The lowest stages generally occurred early in the month in the rivers of Georgia, Alabama, and Mississippi, and the highest during the last decade, flood stages not being approached at any station.

THE TROPICAL STORM OF SEPTEMBER 13-14, 1912.

(By ALBERT ASHENBERGER, Local Forecaster, Mobile, Ala.)

The storm that passed inland from the Gulf on the night of September 13-14, with its center probably not over 20 miles west of Mobile, was much less destructive than several other storms recorded in the meteorological history of Mobile. The short duration of the high winds, the comparatively low accompanying tides, and the absence of heavy rainfall for an extended period tended to lessen its disastrous effects.

No premonitory signs of the approaching disturbance were observed, except a somewhat red sky near the western horizon at sunset, and an unusually rapid movement of the lower clouds at about 9 p. m. The tides in Mobile River had been abnormally low, but during the east and southeast winds rose rapidly, and reached the level of the top of the lowest wharves at about 4.30 a. m.

The hourly wind velocity on September 13 ranged from 11 to 16 miles, and the wind veered from north to northeast. An increase in wind velocity was not perceptible till after 1.30 a. m. of September 14. A maximum rate of 32 miles an hour was attained at 2.50 a. m., and the highest velocity, 52 miles an hour, at 3.50 a. m. No high winds occurred after 6 a. m. On September 14 east winds prevailed from 1.30 a. m. to 3.15 a. m., and were followed by southeast winds changing to south at 4.45 a. m. At Pascagoula, Miss., about 35 miles southwest of Mobile, the wind backed from northeast to southwest, and the highest wind was from the northwest. The wind did not reach dangerous velocities at Gulfport, Miss., or other storm warning stations farther west.

A total rainfall of 1.30 inches fell during the storm. Traces of rain occurred near midday and rain began again at 8.30 p. m., on the 13th. Heavy rain fell for about a half hour preceding the increase in the wind velocity.

The barometer read 29.71 inches at 8 a. m., and 29.65 inches at 8 p. m., on September 13, and a slight rise in pressure occurred about 11 p. m. A rapid fall began after midnight; the lowest atmospheric pressure, 29.37 inches, occurred at 3.30 a. m., the pressure remaining almost stationary for half an hour, and then rising steadily until 29.65 inches was reached at 8 a. m. on the 14th.

The loss of property in the city of Mobile from the high winds is estimated at \$8,000. A church, a very weak

structure, on the corner of Delaware and Cedar Streets, was blown down, as were also some business signs and many fences. The wire systems also sustained considerable damage. The loss to vessels in the bay and river is estimated at \$4,000. The larger vessels had been made fast with extra cables, and many of the smaller vessels had ascended the river to places of safety. The principal loss to shipping interests was a barge, valued at \$2,000, which was lost in Mobile Bay, and the steamboat *National*, which sank in shallow water about 3 miles up the river. During the storm a watchman on a barge fell overboard and was drowned.

Storm warnings had been displayed from 2 p. m. of September 12, and wide publicity had been given to the information. The Mobile Daily Item, of September 14, in its account of the storm stated:

Ample warning by the United States Weather Bureau undoubtedly prevented greater loss, as every city, town, and settlement on the coast had been advised of its coming and were prepared for it.

On September 15, the Mobile Register published a special telegram from Pascagoula, Miss., reporting the storm at that place, and which referred to the warnings as follows:

Because of the ample warnings given by the Government shipping was fully able to protect itself.

At Pensacola, Fla., the storm was more severe, and the damage to property considerably greater. High winds from the northeast set in at 9.45 a. m. on the 13th, shifting to east at 3 p. m., and to southeast at 8.14 p. m., attaining a maximum velocity of 59 miles an hour at 9.21 p. m. Immediately after midnight the wind increased in velocity, reaching 74 miles from the southeast at 2 a. m. on the 14th, when the anemometer was carried away. The wind remained high until about 5 p. m. The lowest atmospheric pressure was 29.65 inches on the 13th.

The damage at Pensacola is summarized by Mr. Reed, local forecaster at that station, as follows: The entire beach was strewn with timber and about 20 barges, fishing smacks, etc., went ashore. Private wharves along the bay shore from Fort Barancas to Baylen Street were generally carried away, together with numerous small houses on the wharves used either as bath houses or for fishermen's equipments. The wharves of many of the fishing companies were also damaged considerably. There were several coal barges, steamers, and tugs moored along the east side of Palafox Wharf where two coal barges went adrift; one of them damaged the steamer *Edna C* and the steam yacht *Page*, and rammed and sank the revenue cutter *Penrose*. The British steamer *Coniston* went ashore about 75 miles east of Pensacola. A portion of the track of the Pensacola Electric Co., was undermined south of Bayou Grande, and on Main Street. The damage by winds in the city was slight. The tide during the night of the 13th-14th rose about 2 feet above normal high water, and the waves ran about 4 feet high. Total estimated damage at Pensacola and vicinity, \$25,000.